synchronous over multiple symbols, and has a normalized envelope over all symbols; and

applying input signals from both I and Q channels to said mapping to form a coded waveform representing said signals.

8. (New) A method as in claim 7, wherein said mapping comprises forming a mapping of a FPQSK signal.

9. (New) A method as in claim 7, wherein said mapping comprises investigating in phase bits, investigating quadrature bits, and classing said bits as either: 1) applying only to the in phase signal, 2) applying only to the quadrature signal, or 3) applying both to the in phase and to the quadrature signal.

B1 cont.

10. (New) A method as in claim 8, wherein said mapping forms an output which does not include any slope discontinuities at transitions between different waveforms.

11. (New) A method as in claim 9, further comprising defining a binary coded decimal representation of said bits.

12. (New) A method, comprising:

forming full symbol mappings between in phase (I) and quadrature (Q) bitstreams;

producing an output coded waveform representative of the in phase and quadrature bitstreams;

delaying one of said bitstreams by half a symbol so that both I and Q parts of the bitstreams are simultaneously available; and

using both said I and Q parts to obtain one of said mappings.

B1 Cont.

13. (New) A method, comprising:

obtaining a data stream of bits;

separating said stream into in phase and quadrature sequences;

delaying one of said sequences to form time synchronous I and Q sequences; and

coding a full symbol of the I and Q sequences into coded waveforms indicative thereof.

14. (New) A method as in claim 13 wherein said coding comprises mapping signal sets onto functions using a waveform having a specified waveshape.

15. (New) A method as in claim 14, wherein said mapping comprises cross correlating among the I and Q signals.

16. (New) A method as in claim 15 wherein said cross correlating comprises, for each signal I, determining a subset which will be used to determine only an I part of the function, and determining a second subset which will be used to determine only a Q part of the function, and determining a third subset which will be used to determine both I and Q parts of the function.

17. (New) A method as in claim 16 wherein said cross correlating comprises, for each signal Q, determining a subset which will be used to determine only an I part of the function, and determining a second subset which will be used to determine only a Q part of the function, and determining a third subset which will be used to determine both I and Q parts of the function.

18. (New) A method as in claim 16, further comprising determining the I part of the function from the first subset of both the I and Q signals.

19. (New) A method as in claim 17, wherein said signals are obtained to a code according to a FQPSK coding scheme.

20. (New) A method as in claim 17 further comprising defining symbols according to numbers, and obtaining binary coded decimal indices for said numbers.

21. (New) A method as in claim 13, further comprising mapping said signals to waveforms, wherein said waveforms are selected such that a waveform for an entire symbol has zero slope at its end points, such that there is zero slope discontinuity between symbol transitions in waveforms.

BI cont.

22. (New) A method as in claim 21, wherein said waveforms also have no slope discontinuities within each waveform.

23. (New) A coding system, comprising:

a serial to parallel converter, receiving a plurality of bits at an input thereof, and providing said bits to both an in phase and a quadrature channel;

using both of said in phase and quadrature channels to code said bits as a waveform, by cross correlating and mapping said

signals to a specified waveform based on a waveform table which maps between full symbols and coded outputs of said in phase and quadrature channels;

delaying one of said in phase and quadrature channels relative to the other to ensure time synchronicity; and

transmitting the waveforms to represent said plurality of bits.

24. (New) A system as in claim 23 wherein said cross correlating comprises separating said signals into I only portions from both the I and Q channels, Q only portions from both the I and Q channels, and I and Q portions from both the I and Q channels.

25. (New) A system as in claim 24, wherein said mapping comprises determining a plurality of waveforms for a specified coding scheme based on full symbol mappings; and encoding each of said signals according to said mapping.

26. (New) A system as in claim 25 wherein said symbols are FQPSK symbols.

32. (New) A method as in claim 31 wherein said bits are used to form mappings in pairs of I and Q bits to form FQPSK signals.

33. (New) A method as in claim 31 wherein said coding is for FQPSK.

34. (New) A method as in claim 33, further comprising determining a slope discontinuity in points between different parts of the multiple possible transmitted waveforms, and modifying the waveforms according to

B1 cont'd.

$$s_5(t) = \begin{cases} \sin\frac{\pi t}{T_s} + (1-A)\sin^2\frac{\pi t}{T_s}, & -T_s/2 \le t \le 0 \\ \sin\frac{\pi t}{T_s}, & 0 \le t \le T_s/2 \end{cases} \qquad s_{13}(t) = -s_5(t)$$

$$s_6(t) = \begin{cases} \sin\frac{\pi t}{T_s}, & -T_s/2 \le t \le 0 \\ \sin\frac{\pi t}{T_s} - (1-A)\sin^2\frac{\pi t}{T_s}, & 0 \le t \le T_s/2 \end{cases} \qquad s_{14}(t) = -s_6(t) \qquad (5)$$

35. (New) A method as in claim 28, wherein said mapping comprises a modified method of FQPSK mapping which does not have a slope discontinuity at its midpoint. --

27. (New) A system as in claim 25 wherein said symbols are FQPSK symbols, which are modified to remove slope discontinuities between different parts of the symbols.

28. (New) A method, comprising:

forming a table which correlates between full symbol encoder outputs and specified outputs of a specified coding system using symbol by symbol mappings; and

using input data sequences to form outputs in the specified coding system.

29. (New) The method as in claim 28 wherein the specified coding system is an FQPSK system.

B1 cont.

30. (New) A method as in claim 28, wherein said using comprises mapping specified bits to specified signals without storing said signals in a memory.

31. (New) A method as in claim 28 wherein said using comprises determining, from each of the I and Q channels, bits which represent only I information, bits which represent only Q information, and bits which represent both I and Q information, and using said bits to form the outputs.